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FACTS AND ARGUMENTS
RESPECTING THE
GREAT UTILITY
OF AN
EXTENSIVE PLAN
OF
INLAND NAVIGATION.

BRITISH MUSEUM

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INLAND NAVIGATION

IN IRELAND. k

WITH AN APPENDIX,

CONTAINING THE REPORT OF WILLIAM JESSOP, ESQ. CIVIL ENGINEER, RESPECTING THE PRACTICABILITY AND EXPENCE OF MAKING AN ARTIFICIAL HARBOUR, FOR LARGE VESSELS, IN THE BAY OF DUBLIN.

BY A FRIEND TO NATIONAL INDUSTRY.

Brevis eſſe laboro. Hor.

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BRITISH MUSEUM

FACTS AND ARGUMENTS,

&c. &c. &c.

HIS Majeſty's Miniſters having lately announced their intention, of conſidering the means of promoting the inland navigation of this kingdom, and a committee of the Houſe of Commons having been appointed for that purpoſe, it ought not be deemed improper, that their attention, and that of the committee, ſhould, at this moment, be particularly called to ſo uſeful and intereſting a ſubject.—In ſuch an attempt, the want of novelty in the facts or arguments may, perhaps, be ſufficiently compenſated by the urgency of the occaſion, and by the neceſſity of awakening in the minds of men a proper feeling of the advantages that may reſult from the parliamentary enquiry already inſtituted, ſhould it fortunately terminate in the adoption of an enlightened, and comprehenſive PLAN, requiring many years for its completion.—In order to co-operate with the government of the country, in eſtabliſhing ſuch a plan, the public too ought to be rouſed to a ſenſe of their own intereſts, and ſhould have the utility of inland navigations clearly and diſtinctly pointed out to them; as *vague* and *undetermined* ideas of their uſe, though ſufficient to draw forth encomiums on thoſe improvements in *common converſation*, may yet be utterly inſufficient to influence *practice.*—It may, therefore, be neceſſary, in theſe remarks, to proceed ſtep by ſtep, and to endeavour to demonſtrate beyond the poſſibility of a doubt, "that the encreaſe of water-carriage in this country "is, of all other improvements, the moſt eſſen"tially requiſite to its future proſperity."

The great *deſideratum* in every country, the chief object of every good ſtateſman, is to excite the induſtry, and thereby augment the productive labour, of its inhabitants; for it cannot be denied, that a nation is powerful, proſperous, and happy, in proportion as it is induſtrious.—Now, no individual will be more induſtrious than he is, unleſs by becoming ſo, he can encreaſe the ſum total of the neceſſaries, and conveniencies of life, he has occaſion for—or, in other words, unleſs he can exchange the produce of his labour for a greater portion of thoſe neceſſaries, and conveniencies, than before.—To raiſe the exchangeable value of what he has to diſpoſe of, in order to procure the means of living, is, therefore, the grand ſecret of calling forth his induſtry.—If it fetches a higher price than before, if it enables him to ſave more, with a view to the future, or to ſpend more, and live better, at the moment, and if theſe inducements are permanent, and ſufficiently inviting, they will, by degrees, prevail over his natural liſtleſsneſs and inactivity, and produce in him the habits of laſting, and encreaſing induſtry.

What is true of an individual, may be applied to all the inhabitants of a ſtate, who depend, for their maintenance, on labour of any ſort.—Encreaſe the exchangeable value of the commodities on which their exertions are employed, and, in the ſame proportion, will theſe exertions themſelves encreaſe.—The value, however, for which the rude or manufactured produce of a country can be diſpoſed of, depends entirely on the demand there is for it, either in the country itſelf, or in ſome other country; and to encreaſe that demand, to open up new markets for it, whether home, or foreign, is the moſt effectual means of augmenting the induſtrious exertions of that country.—But the demand for any commodity, at any particular ſpot, muſt always depend on the relative cheapneſs it can be afforded for at that ſpot; ſince the cheaper any commodity is brought to market, the ſurer vent it is likely to find.—Here are two ſteps, therefore, in the grand attempt of encreaſing national induſtry, that ſeem to run counter to each other.—The quantity of induſtry can only be augmented by rewarding it more liberally than before; and yet the price, at the market, where the produce of that induſtry is to be diſpoſed of, ought not to be encreaſed, but rather diminiſhed, in order to ſecure a conſtant vent for that produce, and a growing demand for it.—How are theſe two ſeemingly contradictory objects to be obtained together?

In order to anſwer this queſtion, it is neceſſary to conſider, that the price of all articles of the growth or manufacture of a country, reſolves itſelf into two parts, namely, into the expence of growing or manufacturing them, on the ſpot where the induſtry is exerted, and into that of conveying them to the market, where they are to be exchanged.—Theſe two component parts of the price of commodities may, in different circumſtances, bear all the various proportions to each other that can poſſibly be imagined.—In ſome articles, the expence of carriage may bear ſo ſmall a proportion to the entire value of the commodity, as to open the whole world as market for its ſale.—Such is the caſe with diamonds, gold, ſilver, fine furs and drugs, and ſuch-like precious productions; and with ſome valuable and exquiſite ſpecies of manufactured goods.—In other articles, the expence of carriage to market may be ſo very great, in reſpect of the value for which they would exchange when brought thither, as either to render them of no value at all, or to confine their market to a ſmall diſtance around the ſpot where they are produced.—Whether a free-ſtone, ſlate, marble, or limeſtone-quarry, whether a coal-pit, or a marle-pit, whether ores, or minerals of various kinds, or even entire foreſts, covering immenſe tracts of country, are of any value whatever, or can at all be brought to market, depends entirely on the proximity of that market, and the expence of carriage thither.—All the other cheap, and bulky productions of the vegetable kingdom are, equally with timber, dependent for their value, upon the facility of their tranſport to a ſteady market, and for want of this, may either be entirely neglected, or exchanged for a hundred times leſs, in one particular ſpot than another. In all the ruder manufactures too, the expence of carriage enters as a very conſiderable article into their value, whether of the different raw materials to the places where the goods are wrought up, or of the goods themſelves to the places where they are ſold.—In ſhort, it is unneceſſary to multiply inſtances to ſhew, that by conſiderably reducing the price of carriage, the various prices of all weighty and bulky commodities will be reduced in proportion, many will become ſaleable that before had no value whatever, and not only a reduction of the market price of manufactures, and produce, will thus be neceſſarily brought about, but likewiſe an augmentation of the quantity and ſpecies of the raw material, upon which human induſtry is exerted.—By diminiſhing the expence of carriage, then, it is evident, that the produce and manufactures of a country will come much cheaper to market than they did before, ſo as to occaſion a conſtantly encreaſing demand; and yet, that the price of labour, on account of that very demand may, in the mean time, riſe ſo gradually, and the objects it is employed upon, encreaſe ſo rapidly, as to afford ſufficient inducements to the inhabitants, to apply themſelves more univerſally to induſtrious purſuits.—In this manner it is, that the queſtion above ſtated is anſwered, and the difficulty contained in it reſolved.—The riſe in the reward of labour, conſequent on the reduction of the price of carriage, will be more than compenſated by that reduction itſelf; the former will be the means of introducing habits of induſtry, and the latter of continuing them, by ſecuring a conſtant demand; and thus will a conſiderable *impulſe* be given to the active faculties of the laborious claſſes of ſociety, by the ſingle expedient of raiſing, by degrees, the wages of their labour.

This gradual riſe in the price of labour, like all other things, has its limits; and were it to proceed beyond a certain extent, would defeat its own purpoſe.—When habits of induſtry are once eſtabliſhed, however, many other circumſtances will ariſe to prevent its conſtantly encreaſing price from proving fatal to manufactures.—Superior ſkill will be acquired, by the ſubdiviſion of that labour, ſo that one man will be enabled to perform the work of two; greater capitals will be accumulated, ſo that, tho' the nation may gain much more upon the whole, yet the individual owners of thoſe capitals may make much leſs upon a given amount of them; labour too, may be abridged, *ad infinitum*, by mechanical contrivances; and the expence of the various chemical, and other proceſſes, in arts and manufactures, leſſened by a more intimate knowledge of nature.—All this is the reſult of experience, and the effect of time; and though one country may, no doubt, avail itſelf, by imitation, of every improvement that has been found beneficial in another; yet it ſhould always begin with theſe, the ſucceſs of which is infallible, and does not particularly depend on the genius and diſpoſition of its inhabitants, which may perhaps be but ill adapted for other attempts. Among theſe, the idea of leſſening the carriage of commodities, and thus bringing them cheaper to market, is obviouſly the moſt ſimple; and as far as it is capable of being realized in any country, is the moſt ſolid and durable improvement that can be made in it, and one of the firſt that ſhould be attempted.

Of the means invented for tranſporting commodities, there are four different kinds, each ſucceeding one more perfect than the foregoing, and correſponding to the different degrees of civilization at which mankind gradually arrive.—Thoſe ſavage tribes, that ſubſiſt by *hunting* and *fiſhing*, are obliged to carry along with them, *on their backs*, all the few moveables they poſſeſs. When they advance into the *paſtoral ſtate*, by the acquiſition of tame animals, ſome of theſe are converted into *beaſts of burthen*; and the poſſeſſion of much greater wealth than could be accumulated or tranſported, in the earlieſt and rudeſt ſtage of ſociety, is thus rendered a poſſible caſe, and accordingly realized. When the *ſtate of agriculture* is introduced, and private property in land becomes thoroughly eſtabliſhed, a ſecond improvement in the mode of tranſporting commodities, the invention of *wheel-carriages*, generally follows at ſome diſtance of time; and along with it, the neceſſity

of

of conſtructing public roads and bridges, upon which theſe carriages may run.—Coeval with theſe improvements, however, and preparatory to the *ſtate of commerce*, the laſt and moſt perfect ſituation to which mankind have attained, the diſcovery and perfection of navigation, and *water-carriage*, take place by degrees, and preſent mankind with the laſt, and moſt advantageous method of conveying their redundant commodities to each other, by which the moſt diſtant nations of the earth are formed into one great, mercantile community.—The ſuperiority of water-carriage, over every other kind of conveyance, is ſo very great, that thoſe countries only which enjoy its advantages moſt extenſively, have been enabled to reach the higheſt ſummit of civilization and improvement, and have always been the firſt to rub away the ruſt of barbariſm, and to ſet an example of high acquirements to the reſt of the world.—The greater relative extent of ſea-coaſt a country poſſeſſes, particularly if it abound in navigable rivers, reaching far into the interior; in the ſame proportion is it capable of underſelling its neighbours, by the cheapneſs of water carriage, in the ſame proportion is its induſtry called forth, by the pre-occupation of the market, and the price of the materials of manufactures it receives from its neighbours, is, in the ſame proportion, leſſened.—The hiſtory of trade and commerce, in every age and nation of the world, is one continued elucidation of theſe principles; and ſo far from the inſular ſituation, the indented coaſt and navigable rivers of Great Britain being among the leaſt, that they are obviouſly the principal concurrent cauſes of its preſent unexampled proſperity.—The line that encircles the coaſts of that country, is not leſs than 3,800 miles in extent; which, were it to ſurround an oblong ſpace, equal to the whole iſland in area, this ſpace would be 3,800 miles long, and only 24 miles broad;—ſo that, taking one part of it with another, no ſpot of Britain is farther than 12 miles from the ſea.—France has only 1,000 miles of ſea coaſt, and by the ſame method of computation, its parts are, on an average, 65 miles from the ſea.

But human ingenuity has gone much farther than merely to avail itſelf of thoſe inlets to navigation, with which a country is ſupplied by nature.—Art has proceeded ſo far in ſome countries, ſuch as China and Holland, as to diffuſe the benefits of water-carriage over a great part of their ſurface by means of *canal navigations*;—and though England, by her rivers, poſſeſſes great national advantages, in the carriage of all bulky and heavy commodities, yet theſe are exceedingly encreaſed, of late years, by multitudes of navigable canals, by which the remoteſt towns communicate with each other, in a much more perfect manner than thoſe in France do, or even than thoſe of any other country of Europe, except the Netherlands.——The proſperity of the ſiſter-iſland has riſen much more rapidly, ſince theſe communications were eſtabliſhed, than it ever did before, in an equal ſpace of time, notwithſtanding the heavy tolls with which its canal navigations are burthened, the gain ariſing from which, was the principal inducement to their being accompliſhed at all.—There is probably no other example to be met with in the entire courſe of hiſtory, of a nation being furniſhed with an almoſt complete ſet of navigable canals, by the enterprize and adventurous ſpirit of individuals, as works of this nature have, in all other countries, been carried on chiefly at the public expence.—The previous exiſtence of a great internal trade, ſufficient to refund, with a profit, the expence of conſtruction, was, no doubt, the cauſe of thoſe ſingular exertions in Great Britain; and if ever the ſtate of the finances of that country ſhall enable it to wipe away entirely the numerous tolls, with which its canals are loaded, it may eaſily be foreſeen, that ſuch a meaſure would be attended with conſequences ſtill more beneficial, than any that have hitherto reſulted from the imperfect reduction of the expence of carriage on theſe navigations, in their preſent ſtate.

As we do not, in this country, poſſeſs a degree of internal trade, ſufficient to prompt individuals to undertake the conſtruction of canals all over the iſland, as an object of ſpeculation; and as we cannot therefore expect to be furniſhed with inland navigation, preciſely in the Engliſh manner; unleſs we chuſe to forego entirely, or at leaſt to defer to a very remote period, the benefits ariſing from them, we muſt follow the example of the reſt of the world, and endeavour to have them principally conſtructed at the public expence.—Let us, therefore, proceed to conſider both *generally*, from the nature of the thing itſelf, and *particularly*, as ariſing from the circumſtances and ſituation of this iſland, what theſe benefits are; and afterwards, whether it would be adviſeable to *appropriate* part of the income of the ſtate for their attainment.

In order then to appreciate more diſtinctly the advantages poſſeſſed by canal-navigations over wheel-carriage on the very beſt roads in this country, let it be conſidered—that, in a ſtill-water navigation, one, or at moſt two horſes will draw a boat of 60 tons burthen, (to attend which three men only will be neceſſary,) as far, per day, as a horſe and car will, on land, draw half a ton weight, which may be averaged in both caſes at twelve miles.—One hundred and twenty horſes and cars and forty men, (allowing a man to every three cars,) will therefore be required to tranſport to the ſame diſtance, what one canal-boat, one, or at moſt two horſes, and three men, would be equivalent to, by the help of water-carriage.

	£.	s.	d.
Let us ſuppoſe the expence of the canal-horſe to be per annum, -	20	0	0
Do. of three men attending the boat, at 20l. per annum each, - -	60	0	0
Do. of the boat itſelf, per annum, including repairs, wear and tear, &c.	30	0	0
Total expence per annum of the water-carriage of 60 tons, 12 miles per day,	110	0	0

Whereas, by land, the account will ſtand thus:

	£.	s.	d.
120 Car-horſes, at 20l. per annum each, - - - -	2400	0	0
40 Men to attend them, likewiſe at 20l. per annum each,	800	0	0
120 Cars, at 20s. per annum, for the uſe, and wear and tear of each,	120	0	0
Total expence per annum of the land-carriage of 60 tons, 12 miles per day,	3320	0	0

Hence it appears, that provided both roads and canals be toll-free, the ſame quantity of goods can be conveyed as far by water-carriage for 110l. or (if two horſes are neceſſary to track the canal-boat,) for 130l.—as by land carriage for 3320l.; which is between *twenty-five* and *thirty* to *one* in favour of canal navigations.—Now, if it be ſuppoſed that the tolls, levied both on roads and canals, be juſt equal to the expence of making them and keeping them in repair, it is evident that the public can afford to pay near thirty times more toll for each mile of canal than for each mile of road; ſo as neither to be a loſer nor a gainer by the bargain. Were the expence of conſtructing and conſtantly repairing canals, thirty times greater than that of making roads and keeping them conſtantly in repair, the former would ſtand the public as dear as the latter, and there would be no diminution of the expence of carriage. But every body knows that this is not the caſe. Inſtead of being thirty to one, the original expence of conſtruction cannot well be averaged at more than ſeven to one greater in canals than in roads;—but to counterbalance this, the expence of keeping canals in repair is exceedingly leſs, in proportion to the ſum neceſſary for their conſtruction, than what is required to the repairing of roads.—A canal will laſt for an indefinite period, (if well built at firſt,) by merely cleaning it and repairing the wood-work from time to time; but a road requires to be new made after the lapſe of a certain number of years, or the expence of repairing it amounts, in that period, to that of making it entirely anew.—This conſtant recurrence of expence, muſt, in time, make the latter as expenſive to a nation, nay, vaſtly more ſo than the former can poſſibly be; and a century in the exiſtence of a nation, is not more than a year or two in the life of an individual.—Thus ſuppoſe that a road requires to be new made, (or that the expence of repairs is equal to that of making it anew,) every ten years;—after ſeven repetitions of this operation, that is, in 70 years, it coſts the nation as much as a canal would at firſt.—And though the compound intereſt of the original ſum expended on the canal would, no doubt, keep it above the ſums laid out on the road, after ſeven ſuch operations, yet, extend the number of theſe operations to twice ſeven, and ſo on, and the compound intereſt of the various ſums they coſt, ſuperadded to each original expence, would at laſt exceed, *in* *any proportion whatever*, the total amount of the expence of the canal.—It may therefore, with ſafety, be affirmed, that in 100 years time, every mile of road ſhall really have coſt the public an equal ſum with each mile of canal, though it be near 30 times leſs uſeful for the carriage of goods than the canal would be; and that in 2 or 300 years, (which are ſcarcely equivalent, in the duration of a ſtate, to ſo many weeks in the life of a man,) a ſum ſo immenſely greater, as almoſt to baffle calculation.

But independent of theſe conſiderations, it ought not to be concluded, that in ſuch a country as Ireland, the ſuperior ready money expence of canals, above that of roads, would, in itſelf, be of any material loſs to the nation, conſidered as one great whole.—If 200,000l. yearly, for inſtance, were raiſed upon the public, for the purpoſe of completing all the interior water-communications of which this iſland is capable, the aggregate of thoſe who pay taxes would, no doubt, be poorer, at the end of each year, by the amount of that ſum, (which, however, in proceſs of time, would be repaid them twenty fold, in the improvement of their lands, and the encreaſe of their trade,) but the poor, who are ſcarcely capable of paying any taxes at all, would, in the mean time, be gainers in the ſame proportion that the others would *apparently* loſe, by the ſuperior employment that ſuch works would continually afford them.—There are always, in Ireland, a vaſt number of idle or half-employed labourers, whom works of this kind would naturally draw to them; and that without any ſenſible diminution of the productive labour of the country.—Theſe works too, extending through the different counties of the kingdom, in various directions, would carry a ſpirit of induſtry into every corner of it, and enable multitudes of poor and now half-idle peaſants, by earning a little ſpare money, to acquire a taſte for greater comforts, and a reliſh for uſeful and profitable labour.—In the progreſs of the Grand Canal, theſe effects have been produced in a ſurpriſing degree; the peaſants employed on it, being better clothed, lodged, and fed, and in all reſpects improved in their condition, ſince this opportunity of earning a little money has been afforded them.—It may therefore be aſſumed, as a certain truth, that, provided there be a rational expectation of completing a ſyſtem of canal navigations in this kingdom, the expence attending it ought to be chearfully ſupplied by the public; as for other reaſons about to be mentioned, ſo, becauſe it is by far the moſt uſeful ſpecies of charity that can poſſibly be deviſed; and no excuſe whatever ought to divert the attention of our rulers from this firſt of national objects, till it be thoroughly accompliſhed.—

That this iſland is ſurpriſingly well formed, by nature, for a project of this kind, is evident from this, that it is capable of being cut, *longitudinally*, or from north to ſouth, in two different directions nearly parallel to each other; that from eaſt to weſt, it likewiſe admits of being cut entirely acroſs, from ſea to ſea, in at leaſt three different lines, likewiſe parallel to each other, and that thus not only all its principal cities, except Cork, but almoſt the entire of its towns, may be made to communicate with the capital, and with each other, by interior water carriage.

1. That great maſs of waters, called the Shannon, is capable of being made navigable from Limerick, to its ſource in Lough Allen.—From thence, through the Woodford lakes and river a communication may be opened with Lough Erne, which might probably be continued, by the river Derg, to Lough Foyle, in the moſt northern extremity of the kingdom, and can certainly be carried to the Bay of Donegal.—This, then, conſtitutes the firſt *Great Longitudinal ſection* of the iſland, by which water-carriage is continued, nearly on the meridian line, from Limerick to Londonderry, from the mouth of the Shannon to Lough Foyle and the Northern Ocean.

2. If a ſtraight line be imagined drawn from Coleraine, through Lough Neagh, all along to the mouth of Waterford harbour, this forms the ſecond *Grand Longitudinal ſection* of this kingdom, parallel to the former, and capable, every foot of it, of being made completely navigable.—The beautiful river Barrow, which, for many miles, forms the ſouthern part of this line, may be eaſily made navigable to Athy.—From thence, the Grand Canal continues the communication to near Edenderry.—From this latter place to Lough Neagh and the Tyrone collieries, the country is ſufficiently level to admit of a line of communication quite through the counties of Meath, Cavan, Monaghan, and Armagh, in

which direction the Royal Canal ſhould evidently be turned, inſtead of proceeding in its preſent courſe weſtward; and the river Bann, from Lough Neagh to the ſea, might certainly be opened, though not, perhaps, without a good deal of difficulty, which expence and perſeverance would overcome.—On this ſecond grand longitudinal ſection of the kingdom, goods or veſſels may proceed, by inland water carriage, likewiſe in the plane of the meridian, all the way from Waterford to Coleraine.

While theſe two extenſive ſections, each upwards of 200 Iriſh miles long, join together the ſeas that waſh the ſouthern and northern coaſts of the iſland; three more *tranſverſe ſections* may be made, at right angles to the former, each of which would connect St. George's Channel, or the Iriſh Sea, with the Weſtern Ocean.

1. The firſt of theſe is the junction of the Suire with the Shannon, opening a direct communication between Waterford and Limerick, and which is pronounced perfectly poſſible by the moſt experienced engineers.—The junction of the Suire to the Blackwater, near Mallow, to which place that river was formerly navigable, is likewiſe ſaid to be a practicable object.

2. The ſecond conſiſts in carrying the Grand Canal acroſs the Shannon, and up the river Suck to Ballinaſloe, from whence a communication may be opened with the Bay of Galway; ſo that Dublin would trade directly to the Atlantic and America.

3. The third unites Ballyſhannon to Belfaſt, by opening through the Blackwater which falls into

Lough Neagh, a direct communication between Lough Erne and that lake, which already communicates with Belfaſt and Newry, by the Lagan, and Newry canals. This preſuppoſes the navigation opened between Lough Erne and the ſea; which object is now under the direction of a particular company.—Theſe two inland lakes would thus become the centres of a vaſt internal trade; as each of them would have four canals iſſuing from or entering into them.

It is to be remarked, that as the directions of theſe three *Great Tranſverſe Sections* of the kingdom are all from eaſt to weſt, and thoſe of the *Two Longitudinal ſections* from north to ſouth, its entire ſurface would, by their mutual interſections, and by means of the cut from the Suire to Mallow, be divided into ELEVEN UNEQUAL ISLANDS, of which the ſouth-weſtern angle of the kingdom, including the counties of Cork, Kerry, and Limerick, would perhaps form the greateſt.

The dimenſions of theſe *Five Principal Communications*, or *Grand Trunks*, which connect together the different ſides of the iſland, and prevent a tedious and circuitous voyage around it, cannot be circumſcribed by any other conſideration than that of the expence. They ſhould be made as large, and as free from tolls as poſſible; for when a nation is about to embark in an undertaking of this kind, the good effects of which are to deſcend to the lateſt poſterity, it ought to ſtrain every nerve to complete the works handſomely, and thus render them more univerſally and ſubſtantially uſeful.

Were Dublin to communicate, by inland water-carriage, with the interior of this country, in the manner juſt now-mentioned, and thus, by its two canals, draw into its boſom the produce of all the four provinces, with ſome ſmall exception, towards the extremities of the iſland, it muſt neceſſarily become a place of vaſtly greater trade than it has hitherto been, by the encreaſed export of home produce; and its foreign trade of conſumption, and that of re-export too, muſt likewiſe augment in nearly the ſame proportion.

Now even ſuppoſing the above plan not carried into execution, or any part of it; ſtill a more capacious, ſafe, and convenient harbour, particularly for foreign commerce, would be a moſt deſirable acquiſition; and if the ſcheme of forming one by art be at all practicable, the expence attending it would be richly repaid, and that at no very diſtant period, by the encreaſe and ſecurity of trade which it would occaſion.—It has been ſuggeſted, by very able engineers, that a *deep Cut* might be made, from the preſent magnificent docks, that form the termination of the Grand Canal, all along ſhore, till it meets with depth of water ſufficient to admit the largeſt Weſt-Indiaman.—By actual examination and meaſurement on the ſpot, a ſufficient depth of water, for this purpoſe, has been found off the pier at Dunleary; and the courſe of the ſhort Cut from thence, being all a perfect level, would preclude the neceſſity of *locks*, except a *ſea-lock* to communicate with the *Baſon*.—Ships of large burthens would no longer be prevented from frequenting this port on account of our unfortunate *bar*; nor would thoſe of ſmaller ſize be deterred from coming hither, by reaſon of the numerous ſhipwrecks in an open bay, without ſhelter, or relief from ſtorms.—They could all fly for protection to the ſound of Dalkey, or the great Baſon at Dunleary, from whence the largeſt of them could be wafted, with perfect eaſe, into the docks already built for them, ſo conveniently ſituated for the trading part of the city, and placed ſo exactly on the ſpot, where the communication with the country begins, and where that with the great ocean can be rendered practicable for the largeſt veſſels*. Had the monies expended on various other objects of much leſs utility, but which 'tis unneceſſary to mention here, been judiciouſly appropriated to this more uſeful undertaking, the capital of Ireland might perhaps, at this moment, have been in poſſeſſion of a harbour ſcarcely inferior to any in Europe.—But it is not yet too late to retrieve our error.

That the great works, above briefly alluded to, are all, or at leaſt the greateſt part of them, practicable, will ſcarcely admit of being queſtioned.—Theſe, however, do by no means exhauſt the aptitude of this country for improvement, by means of internal navigation.—Proceeding from the *five grand trunks*, already mentioned,a great varietyo f ſubordinate canals may readily be drawn, as occaſion may require, or intereſt prompt, and thus the communication with the ſea, and the interior of the country, be exceedingly enlarged in almoſt every poſſible direction. Beſides the Shannon and the Barrow, many other of our rivers too, ſuch as the Boyne, Slaney, Nore, Blackwater, Lee, &c. are capable of being rendered navigable much nearer to their ſources, and the market of the whole world opened to the countries which lie on their banks. The two latter rivers, which belong to the county of Cork, might impart to that corner of the iſland ſome of the benefits of inland water-carriage; as it is well known that the Blackwater, particularly, was formerly navigable 40 miles from its mouth.—Yet it would be difficult to connect the city of Cork with any conſiderable tract of back country, or with the reſt of Ireland, by means of inland navigation; though, perhaps, ſome part of the difficulty may, in proceſs of time, be found not entirely inſurmountable.—Upon the whole, however, it may be affirmed, that, from the various favourable levels of this country, from the plenty of water with which it is every where ſupplied, and the comparatively great rivers with which it abounds; there is ſcarcely a ſpot in Europe, which is not an abſolute flat, that is more capable of being interſected by multitudes of canal navigations, than Ireland.

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* See the Report of Mr. Jeſſop, on the *practicability* of this great undertaking, and an eſtimate of its *expence*, in the appendix.

The *advantages* that would accrue to this country, from the execution of ſuch a plan as the foregoing, are ſo numerous and various, and in ſome degree obvious too, that one is altogether at a loſs where to begin in the enumeration of them.—Agriculture, however, would be the firſt to feel its beneficial effects; and for *two reaſons*, the encouragement and increaſe of tillage, is, of all other improvements, of the moſt vital importance to Ireland.—The *firſt* is, that a great majority of her people, being in a comparatively rude and uncivilized ſtate, all attempts to introduce *ſuddenly* among them the finer kinds of manufacture or induſtry muſt fail; the coarſer ones only can ſucceed; and the raiſing of corn is an employment to which alone the greater part of them are accuſtomed, and in which, therefore, they can ſooneſt, and moſt eaſily be improved.—Whatever manufactures depend immediately on the ſoil of the country for their *primum*, ought, no doubt, along with agriculture, to form an object, yet ſtill a ſecondary object only of parliamentary encouragement, and, laſt of all, thoſe finer ſpecies of fabricks, which are made of materials brought from abroad.—By theſe regular gradations, and in this very order, it is, that the circumſtances of a country are gradually, and entirely changed; that induſtry, wealth, and population are encreaſed, capitals, and ſkill created, and the inhabitants inſenſibly converted into a perfectly well employed, and productive community.—Yet ſtill is agriculture the firſt ſtep in this proceſs, the foundation of all commercial greatneſs; and in this country, in its preſent unimproved ſtate, the moſt *imperative* object of public attention.

Another reaſon why the encreaſe of tillage ſhould be promoted to the utmoſt here, is derived from the actual circumſtances of the empire at large.—Great Britain, from the aſtoniſhing improvement of her manufactures, within the laſt half-century, and the encreaſed number of hands employed in them, which evidently argues an augmented population, is no longer able to grow corn at home ſufficient for her own conſumption.—Her average import, during the three years ending 5th January 1799, was as follows:

	£.	s.	d.		£.	s.	d.		Tons.
Barley	1	5	0	per quarter of 28 ſtone	91,965	3	1	in weight	2,875
Beans	1	5	0	per do. of 32½ do.	27,052	19	4	do.	4,396
Indian Corn	2	10	0	per do. of do. do.	18,782	3	9	do.	1,526
Oats	0	18	0	per do. of 21¾ do.	607,837	14	6	do.	91,808
Oatmeal	0	11	6	per Boll of 96½ lb. per	38,157	5	9	do.	2,859
Peaſe	2	5	0	per quarter of 32½ ſtone	54,158	18	1	do.	4,889
Rye	2	0	0	per do. of do. do.	117,176	15	0	do.	11,900
Wheat	3	0	0	per do. of do. do.	1,668,279	0	0	do.	112,956
Do. Flour at	1	4	0	per c. wt.	90,996	3	10	do.	3,791
Total average value of corn yearly imported					2,714,406	3	4	Total weight of do.	247,000

Near two millions and three quarters of money, therefore, have been *annually* ſent from Great Britain, in the three years of moderate plenty preceding the preſent; of which there was ſupplied by Ireland only to the amount of 453,003l. annually, which is no more than the *ſixth* part of the entire demand.—In years of ſcarcity, ſuch as the preſent, a vaſtly greater ſupply is neceſſary; and the entire importation of Great Britain, from all the world, will not probably, this year, fall much ſhort of *eleven millions* ſterling; of which this country ſhall ſcarcely have contributed any part at all*.—Were Ireland then capable of exporting ſix times more grain than ſhe does in plentiful years, and even a hundred times more than ſhe can do in years of extreme ſcarcity, ſhe would readily find a market

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* It appears, by the entire of the foregoing ſtatement, that Great Britain ſhall have paid in the courſe of the three laſt years, together with the preſent, a ſum exceeding 19 millions ſterling for corn imported, and that Ireland ſhall not have received more than 1,359,000l. out of the whole nineteen.—The remaining ſeventeen millions and three quarters may be conſidered as a bounty, given by Great Britain, to improve the agriculture, and increaſe the population and reſources of countries, in whoſe welfare the Britiſh empire can have no intereſt; or in other words, theſe ſeventeen millions and three quarters ſhall have been expended in creating future armies and navies for nations, whoſe object is to rival the commerce, and who may perhaps attempt to ſubvert the power of Great Britain.—To continue dependent on thoſe nations for ſo immenſe a ſupply of grain, which may be raiſed at home, is, beſides, a very erroneous policy, that certainly will not be long perſiſted in, by ſo wiſe a nation as Great Britain.

for it in Great Britain.—Now to undertake the long and tedious voyages of the Baltic, the Mediterranean, or North America, in order to look for wheat to feed the Engliſh manufacturers, or, which is ſtill worſe, to ſuffer the owners of that wheat to enjoy the profits of its carriage, while almoſt entire provinces of this fertile iſland are ſuffered to continue in a *ſtate of nature*, and merely to feed a few fat bullocks, or ſheep, by the natural richneſs of the ſoil, without the ſmalleſt attempt at cultivation;—this is ſuch a *ſoleciſm* in political economy, ſuch a violation of the principles of all rational government, ſuch an immenſe and reciprocal loſs to both iſlands, that it is high time their reſpective governments ſhould ſeriouſly turn their attention towards it. Unleſs this country be cultivated ſo as to become, in time, a little granary for the empire, 'tis difficult to ſee where even the wealth of Great Britain can always make ſure of a ſufficient ſupply.—The ports, on the ſouth and eaſt ſide of the Baltic, are frequently ſhut, through the jealouſy, or political motives of their ſovereigns; Poland is ſaid not to produce near ſo much grain ſince the laſt partition as before; the Sicilian wheat is too hard for the Engliſh millſtones to grind it eaſily; the ports of Barbary are frequently ſhut by the plague; and as to North America, the great demand of the Weſt Indian market muſt drain that country ſufficiently, in common years; ſo that neither from the eaſt, ſouth, nor weſt has Great Britain any proſpect of a permanent ſupply, equal to what the very iſland, ſtretched along ſide of her, is capable of affording.—To ſay that the proviſion-trade, in cattle, muſt needs ſuffer, by the extenſion of agriculture here, and that ſalted proviſions are as neceſſary to the empire as corn, is to frame objections gratuitouſly, and without conſidering, that, by introducing here the improved modes of uniting paſturage and tillage together, as practiſed in England, each acre of our paſture land might be made twice as productive as it now is, and that, upon the whole, though tillage might be greatly encreaſed, the quantity of beef, pork, and butter exported, would not be ſenſibly diminiſhed; and with regard to pork particularly, which depends ſo much on agriculture, its quantity would neceſſarily be augmented.—But let the weight of this argument be what it may; ſurely it is infinitely more profitable for a country to employ thoſe lands, that are fit for it, in producing corn, than in feeding cattle, in the way, viz. in which they are fed, in our grazing counties, where they are reared and fattened on the *mere ſpontaneous productions of the ſoil.*—Simply to deſcribe ſuch a ſtate of things as this, is a ſufficient argument againſt its further continuance.—Did the converſion, then, to agricultural purpoſes of an additional number of acres of the Iriſh ſoil, ſufficient to ſupply the entire demand of the Britiſh market for corn, even draw along with it a diminution of the quantity of ſalted proviſions, exported from hence for the fleets and colonies of Great Britain, the deficiency, in the former caſe, could be ſupplied from Ruſſia, and in the latter caſe, from the American ſtates; and it would be exceedingly more profitable for Great Britain, to have recourſe to thoſe countries for a ſmall ſupply of ſalted proviſions, than for ſo great a quantity of corn, were it even true, which is by no means admitted, that a greater production of corn here would, in the end, materially diminiſh the export trade of our other proviſions.

According to the imperfect modes of farming, prevalent among the Iriſh peaſantry, the average produce of a plantation-acre of the different ſorts of grain may be looked upon as equivalent to a ton weight.—Ireland ſupplies nearly a ſixth part of the 247,000 tons of corn, by which quantity Great Britain is deficient, in years of moderate plenty; i. e. ſhe employs about 41,166 acres of her ſoil, in growing corn for the Britiſh market.—In order to enable her to ſupply that deficiency entirely, ſhe muſt employ ſix times as much land, or 205,834 additional acres for the ſame purpoſe, according to the preſent rate of their produce; or, if ſhe improves in the knowledge of farming, and that a ſmaller quantity of land will be ſufficient, ſtill the extenſion of tillage muſt be very conſiderable, that ſhall enable her to anſwer the entire demands of Great Britain.

Let us now conſider whether the conſtruction of navigable canals to the extent already mentioned, or even to a ſomewhat leſs extent, would not operate ſufficiently to produce this deſirable effect.—The average rate of land-carriage, in this country, is not at preſent leſs than a ſhilling per ton per mile; and the charge upon canals, if built at the public expence, need not be more, including the *freight*, than two-pence per ton per mile, and even much leſs for great diſtances, viz. ſuch a ſum as will ſuffice to pay the freight, and keep them in repair, with a ſmall profit to the undertakers.—Thus the expence of carriage on the canals will be only one ſixth of what it coſts by land.—Suppoſing then that the entire deficiency of corn under which Great Britain labours, viz. 247,000 tons annually, were ſupplied from this country, and that each ton weight was obliged to be carried 24 miles, on an average, to the harbours moſt eligible for its exportation; it will from thence follow, that the growers of theſe 247,000 tons would gain, annually, 10d. per ton for each of theſe 24 miles, by the ſubſtitution of canals for land-carriage, i. e. they would gain 20 ſhillings a ton, yearly, in the exportation of the entire quantity.—This would of itſelf conſtitute a premium for agriculture of 247,000l. per annum; or if a ton weight is the produce of an acre of corn, the farmers of this country would thus have a bounty of 20 ſhillings an acre, for the proſecution of the trade of growing corn for the Britiſh market.—It is difficult to ſay what other expedient could be thought of to promote agriculture, if 20 ſhillings an acre, annually expended by the public on ſo large a quantity of land, would not be a ſufficient inducement to active exertion.—Nor is it by any means extravagant to ſuppoſe, as is here done, that each ton weight of grain would, on an average, require to be carried 24 miles, before it reaches the place of its exportation ; becauſe many of the future corn-countries would lie at a much greater diſtance than 24 miles from the channel, or Iriſh ſea, and becauſe the harbours, preferred for export, would either be Dublin, or ſome of the ports on the eaſt ſide of the iſland, to avoid the great expence and delay of a circuitous coaſting navigation.—If it be objected, that the price of corn would fall in the Britiſh market, in conſequence of the reduction of the expence of carriage here, or that the rents of our corn lands would riſe, from the ſame cauſe, ſo that the Iriſh farmer would not feel the benefit of that reduction ; it may be replied, that the demand of Great Britain ſeems to be conſtantly on the encreaſe, ſo that 'tis difficult to ſet any bounds to it, beſides that the market of the whole world is open to us, as well as that of Britain; and though the rents of land ſhould riſe, as no doubt they would ; yet, in the interval of time, until they came to the natural level to which the new improvements would carry them, ſufficient encouragement would be held out to the growers of corn for exportation, though it ſhould not long continue at 20 ſhillings an acre.—Even half that ſum, clear profit, would be a *ſtimulus* powerful enough to convert, by degrees, to tillage, all the land that would be neceſſary fully to ſupply the encreaſing neceſſities of Great Britain, which, at the preſent rate of demand, would only require 205,000 more acres of the Iriſh ſoil to be converted to the purpoſes of agriculture.

But into whatever pockets the gain was ultimately diſtributed, ſtill it remains certain, that the country, in general, would ſave 247,000l. annually; which, valued at twenty years purchaſe, may be eſtimated, in round numbers, at *five millions* of pounds ſterling.—Were Ireland then to convert only 205,000 acres more of her ſoil to tillage, than are at preſent employed in it, ſhe could afford to ſpend five millions ſterling in conſtructing the canals neceſſary for the tranſport of corn to the ſea ſide, without loſing or gaining by the operation.—But if all the canals already enumerated, could be made for a much leſs ſum than five millions, or if, when conſtructed, they would ſerve for *an infinity of other beneficial purpoſes*, beſides the mere tranſportation of grain, both of which aſſertions are true in an exceeding great degree, then it appears as clear as noon-day, that we cannot poſſibly make too great exertions in this line—and that if a *rage* for any thing, in any country, is at all excuſeable, it ought clearly to prevail in Ireland in favour of canal-navigations.

Probably two and a half, or at moſt three millions, judiciouſly and faithfully expended, (in which, indeed, lies the principal difficulty,) would be ſufficient to give to this country all the *practicable* extent, already mentioned, of internal water communications.—The ſingle ſaving on the carriage of exported corn, (ſhould it amount to a quantity ſufficient to ſupply the preſent wants of Great Britain—of which there is every probability) would be almoſt twice more than ſufficient to refund this ſum to the nation; which, on this article alone, would gain two millions ſterling.—Every *other* uſe to which canals can be applied, every *other* benefit reſulting from them, is ſo much clear additional profit, for which credit may be taken in favour of the ſcheme. But to enumerate theſe *other* benefits and advantages, is really a taſk of the moſt difficult and laborious kind, entirely ariſing from the unbounded extent of the ſubject.—Beſides corn for export, how many other ſpecies of heavy and bulky commodities, both native and foreign, muſt, the native be carried out of, and the foreign brought into the very heart of this country; on all of which, a reduction of the rate of carriage to one-ſixth of what it coſts at preſent, would afford the latter exceedingly cheaper to the conſumer at home, and encreaſe the demand for the former abroad, by leſſening their price in the foreign market?—Would not the exchange of the products and manufactures of the different parts of the iſland with each other be extended and promoted, in a ſtill higher proportion than its intercourſe with other countries—and that moſt beneficial of all the branches of commerce, the inland trade of the country, be thus quickened and revived in a moſt eminent degree, and in thouſands of inſtances, newly created, where it never exiſted before? Would not the Iriſh manufacturer acquire much cheaper the materials, upon which his induſtry is exerted, and the price of the manufactured article remaining nearly the ſame, would not his application to his trade be thereby excited and his gains encreaſe? Would not the circumſtance of our being able to ſupply other countries more cheaply with the native articles we ſend to them, while the foreign price continues nearly the ſame, enable us either to put the difference in our own pockets and thus enlarge our profits, or to encreaſe the quantity produced, by the growing competition for theſe profits?—In ſhort, it would be endleſs labour to enter fully into particulars on this fruitful ſubject, which embraces almoſt the entire circle of intercourſe that man holds with man.—The following ſhort ſummary or *heads* of argument, muſt, for the preſent ſuffice, to enable the reader to form ſome idea, however imperfect, reſpecting it.

I. By an extenſive plan of inland navigation, the price of proviſions of every kind would be kept almoſt on a level all over the iſland; nor would the poor manufacturers in the capital, or northern diſtrict of this country, be ever liable to ſuffer, as muſt infallibly happen at preſent, by any thing leſs than a *general* ſcarcity of the neceſſaries of life.—Now that corn is no longer carried free to this great city, its inhabitants are entirely excluded from being ſupplied by the diſtant counties, or if they muſt have that ſupply, they are obliged to pay 10d. per ton, per mile, which on 100 miles is almoſt 10s. 6d. the Iriſh barrel, or about one-third of the uſual price, *more* for it, than if they enjoyed the benefits of canal-navigation. The capital, therefore, the great ſeat of manufacturing induſtry and encreaſing population, is literally ſtarved, while the more diſtant provinces overflow with grain of all ſorts; and for want of inland water carriage, the coaſts of England and even thoſe of France could be more eaſily ſupplied with corn from the ports of Limerick or Galway, than Dublin can, or any ſea-port on the eaſt ſide of the iſland.—A voyage from Limerick to Dublin requires almoſt as many winds as there are points in the compaſs; and though there be plenty of oats in the ſouth of Ireland, the linen-manufacturer in the north may often die for want of food, before thoſe winds may chance to permit a ſupply to be brought to him. But if the caſe holds thus true in reſpect of corn, it preſſes ſix times more ſeverely ſtill with regard to potatoes, the common food of our labouring poor. While that neceſſary article was lately at 16, 18, and even 22 pence a ſtone in Dublin, it was ſelling at *four* pence a ſtone in the county of Limerick. Were water-carriage opened from the capital to Limerick, viz. ninety-four miles, at two pence per ton per mile, the expence of the carriage of potatoes would be only about 1⅛d. per ſtone; whereas by land, it is ſix times that ſum, or 7d. per ſtone. —In other words, the expence of land-carriage is more than *twice* the price of the commodity; while by water, it would not be more than *one-third* of that price.—It could therefore come by water-carriage, in ſufficient quantities to keep the Dublin price ſteady all the year round and prevent the apprehenſions of a famine; whereas the price in that market, (except perhaps on extraordinary occaſions, that laſt but for a ſhort ſpace) can never enable it to come by land carriage at all.—The ſame remark may be applied, in a leſſer degree, to every other kind of proviſions brought from a diſtance to the capital or to other large towns; and even in a much greater degree to the article of fuel brought from the interior, as being a more weighty and bulky article ſtill, in proportion to its value, than potatoes.

II. Not only would the price of proviſions be maintained nearly equal every where, and thus the ſuperfluities of one part contribute fully to the neceſſities of another, but the quantity of theſe proviſions would be prodigiouſly encreaſed, and an univerſal plenty of food be conſequently diſtributed over the entire country.—For,

1. Corn would become more valuable by the facility of its export abroad, and of its ſale at home. Of courſe more land would be turned to tillage, in order to ſatisfy the encreaſed demand.—The amount of the reduction in the price of carriage, which occaſions this, would for a time go principally into the pocket of the farmer. And though a part of it would, at laſt, be ſhared by the landholder in his encreaſed rent, and by the conſumer in the reduced price of the article, yet a great abundance of corn muſt neceſſarily be created during this very proceſs.

2. Not only would more land be turned to tillage, but by the facility of tranſporting manure, that land would be much better cultivated, ſo as ſtill more to augment the quantity of its produce. Marle, dung, lime, limeſtone-gravel, ſea-ſand, ſea-weed and every other ſpecies of manure, are all heavy and bulky articles, which cannot be carried to any great diſtance except by means of water-carriage. The lands in

the neighbourhood of canal or river navigations would be brought ſix times nearer to the marle-pit, the lime quarry, to the coal, culm, or turf with which lime is burnt, or to the dung of the different towns or villages, ſituated at great diſtances along thoſe navigations.—Now all theſe ſubſtances, without water-carriage, muſt be entirely uſeleſs, except to thoſe fields which lie in a trifling circuit around the places where they are found. And not only this; but when a ſpirit of improvement and active exertion is once excited among the peaſantry of a country, which a ſcheme of this nature could not fail to effect, they will run greatly beyond the mere numerical advantage reſulting from the ſcheme itſelf: for one improvement is the parent of another; and it is only neceſſary to ſet the idea fairly afloat, to expect from it much greater ſtrides than can be at all exactly calculated or foreſeen in the outſet. That, for inſtance, the uſe of lime as a manure, ſhould not at laſt become univerſal in this country, when the fuel can be ſo eaſily tranſported to the limeſtone, or the limeſtone to the fuel, by means of water-carriage;—that the Engliſh modes of farming and feeding cattle conſequent upon this, ſhould not likewiſe be introduced and imitated here, whether they conſiſt in the moſt eligible treatment and amelioration of the ſoil, in the proper rotation of crops, the uſe of artificial graſſes, of winter feeding for cattle, or in attention to the breed of tame animals, and to the quality of wool;—that the Iriſh farmer, in ſhort, ſhould not at laſt learn his trade, and avail himſelf to the utmoſt of all that variety of manures which water-carriage would bring to his very door, are ſuppoſitions which the natural ſhrewdneſs and ingenuity of the common people of this country will not allow us to entertain. But were they to become only half as good farmers as in general the Engliſh are, the quantity of proviſions, whether animal or vegetable, would be prodigiouſly encreaſed, and their export, and conſequently the riches of the country, proportionably augmented.

3. It ought to be obſerved, likewiſe, that were water-carriage eſtabliſhed between the diſtant counties of Ireland and the capital, and that potatoes, for inſtance, could be carried thither, from the diſtance of 94 miles, for 9d¼ per hundred weight; it is utterly impoſſible that the price of that commodity ſhould ever riſe to 8, 10, 12, nay 14 ſhillings a hundred or 1½d. per lb. as it has done of late, (to the utter oppreſſion of the poor,) or even to much more than the fourth part of theſe ſums.—In conſequence of ſo cheap, regular, and eaſy a conveyance, the culture of potatoes, and of other roots, and vegetables, for the Dublin market, or for that of any other of our large towns, would form an eſſential object of profitable huſbandry in the very remoteſt diſtricts of the country, ſo as to render the quantity, at its *natural* price, equivalent to the *effectual* demand.—But while this is going forward that quantity muſt ſurely encreaſe prodigiouſly, and the mode of living of the poorer ranks muſt be proportionably improved. The ſame reaſoning may be applied to every other ſpecies of proviſions, or neceſſaries, in which the expence of carriage forms a con-

ſiderable part of their value, and with which the towns are ſupplied from the country. The propoſed reduction, in the price of carriage, to one ſixth part of its preſent amount brings, in fact, each individual farm in the country, ſituated near a canal, ſix times nearer to the market town where its produce is diſpoſed of; ſo that Dublin would not be farther than 20 miles diſtance, (ſo to ſpeak,) from the remoteſt extremities of the kingdom, a few angular points excepted, and would be ſupplied, in every thing ſhe wants, from all Ireland, with the ſame facility, and at the ſame rate of carriage, as ſhe now derives theſe ſupplies from the ſmall circuit of 20 miles around the Circular-Road. The competition for furniſhing theſe ſupplies being thus extended over the whole kingdom, it is utterly impoſſible that the markets ſhould not always abound, and at the cheapeſt rate, with every thing the country is capable of producing.

4. As not the ſixtieth part of the draft or car-horſes, at preſent uſed for the carriage of goods, would be neceſſary in conveying theſe goods by inland navigation, an immenſe ſaving in capital to purchaſe thoſe horſes, and in hay and oats, and graſs to feed them, muſt thus be made by the community. That graſs and that hay would be uſed for keeping cattle; and thus the quantity of butcher's meat, whether for home conſumption, or for exportation, would be augmented; nor would any diminution take place in our export trade of ſalted proviſions, in conſequence of the encreaſe of tillage to ſupply the Britiſh corn-market. The oats would be exported,

ported, or conſumed by the poorer ſort of people, and thus whole diſtricts of country made productive to the ſtate, which were before employed in ſupporting vaſt numbers of unproductive animals, now no longer neceſſary.—The cows, and oxen, and ſheep too, that would replace the young of theſe comparatively unprofitable, but now unneceſſary draft horſes, would augment the quantity not only of butchers' meat, but of milk, of butter and cheeſe, of wool, hides and tallow.—When it is conſidered, that each horſe conſumes the living of at leaſt four human creatures, and that were all the navigations completed, that have been enumerated, not one fortieth part, perhaps, of the car-horſes that now travel our roads in ſuch vaſt numbers, could find any employment at all, at leaſt in that line; though it be very difficult from our lamentable ignorance of ſtatiſtical and economical ſubjects in this country, to aſcertain the probable amount of this gain to the public; yet is it almoſt ſelf evident that it would be exceedingly great.

III. Were this country to enjoy the advantages of ſuch an extent of water-carriage as is propoſed—though its firſt effect would be to raiſe agriculture to an extraordinary pitch of improvement, as above deſcribed, yet a nearly concomitant and equal impulſe would be communicated by it to our trade and manufactures alſo.—For,

1. If the materials of manufacture are produced, and the manufactured articles conſumed in this country, the former muſt be conveyed to the ſpot where the manufacture is carried on, and the latter

muſt next be tranſported to the place of ſale. Theſe two places muſt always be at ſome diſtance, and frequently are at great diſtances from each other; and a raw commodity will often have to travel half round the iſland before it gets into the retail ſhop, or ware-houſe, in a manufactured and finiſhed ſtate.—If by any contrivance you can bring the barley ſix times nearer to the brewer or diſtiller, the wool and flax ſix times nearer to the manufacturer, than they are at preſent, and ſo on in all our home manufactures whatſoever they may be; and if, in addition to all this, you can likewiſe bring the market, where the finiſhed goods are to be diſpoſed of, ſix times nearer to the ſpot where the manufacturer reſides; you will thus enable him to add to his profits five-ſixths of the entire expence of the carriage of both of the raw material and the manufactured commodity; and in heavy and bulky articles, ſuch as almoſt all thoſe are, upon which the induſtry of a comparatively rude nation, as Ireland is, muſt neceſſarily be employed, that expence, though difficult to be eſtimated, muſt yet bear a conſiderably high proportion to the value of the goods manufactured. But theſe extraordinary profits acquired by the exiſting manufacturers and thoſe they employ, will not long be confined to them excluſively.—Great numbers of other half-employed individuals will gradually be tempted to engage in each of their reſpective trades; idleneſs will give place to induſtry and enterpriſe, and that invincible inclination to better his condition, which every human being is actuated by more or leſs, will thus have ſcope for exertion, and diſplay itſelf by a briſk and uſeful competition. That competition and the encreaſed number of hands, by greatly enlarging the amount of manufactured produce, muſt either diminiſh the price to the home conſumer, who will thus be enabled to uſe it more freely and in greater quantities; or if there be a vent for it abroad, will ſuperinduce exportation where it never exiſted before, encreaſe it where it did exiſt, or perhaps be productive of all theſe events together.—'Tis ſomewhat in this manner then that water-carriage, when cheap and univerſal, tends exceedingly to promote the internal trade of a country by facilitating the intercourſe of its moſt diſtant parts, and to encreaſe and even create exportation where it never exiſted before. All this alludes, however, merely to thoſe places which were previouſly in poſſeſſion of ſome ſpecies of trade or induſtry; but the effect of water-carriage goes a great deal farther ſtill: it often creates induſtry in the heart of a country, no veſtiges of which were formerly to be found, and which without it, would probably never have been called forth at all. Why do we obſerve ſo many ſmall towns and villages in Ireland without any trade or manufacture whatever, but depending for a ſcanty and miſerable ſubſiſtence upon what the wretched inhabitants can pick up from the neighbouring fields? Is it not principally becauſe they are too remote from thoſe markets where the *primum* of manufacture is to be procured and the produce of it diſpoſed of? Bring them but ſix times nearer to both of thoſe places—let the remoteſt village in Ireland be only 20 miles from the capital and almoſt at the very gate of ſome conſiderably large town or other, and it will not be ſlow to avail itſelf of that happy change of ſituation. Why do our quarries of lime-ſtone, of marble and of ſlate, and our mines of coal, iron, copper and lead, employ ſo few hands, bring in ſo little to their owners or the public, and remain as they do in their preſent neglected ſtate, the everlaſting reproaches of the national character?—'Tis owing to the want of a market ſufficiently near and advantageous, to excite enterpriſe and rouſe our ſleeping faculties. Why do our landholders ſo often neglect the woods, left them by their anceſtors, and never once think of planting timber as a ſpecies of profitable farming, ſo that the country is literally bereft of wood for its neceſſary conſumption, and particularly for ſmelting its iron ore? It is owing to the want of water-carriage, which, were it univerſal here, would render this commodity of ſo much greater value than even the exorbitant rate at which it is now ſold, as finally to *force* the growth of ſuch a quantity of it as would ſupply a good part of the demand and at laſt reduce the price. But it is unneceſſary to dwell longer on the acknowledged *truiſm*, that inland navigation evidently tends not only to *increaſe* but even to *create* internal trade.

2. The ſame truth is equally evident with regard to manufactures whoſe materials are derived from other countries, or whoſe market principally depends

on thoſe countries.—To connect with all the world, by means of water-carriage, not only the principal inland towns in Ireland, but even every village, every ſpot of ground ſituated on the whole range of the navigations propoſed, is to give to all thoſe places a command of the *primum* of manufactures, from all parts of the globe, at the cheapeſt poſſible rate. The hops, bark, ſalt, coal, clay, flint, tin, iron, timber, cotton, ſilk, leather, flax-ſeed, pot-aſh, foreign wool, dye-ſtuffs, raw ſugar, leaf-tobacco, and all the other foreign articles on which our induſtry operates, muſt, many of them be carried entirely into the interior of the country, and as that is the moſt advantageous ſeat for manufactures, they ought almoſt all to be ſo carried.—To diminiſh the expence of this carriage to one ſixth of its preſent rate, upon ſo many heavy and bulky articles, muſt be an immenſe ſaving to the manufacturing intereſts, the conſequent increaſe of whoſe profits would, in like manner as was already mentioned, tempt competitors into the trade, and thus encreaſe the ſum total of national induſtry.—On the other hand, the exiſtence of internal navigations would enable us to export, to the reſt of the world, not only our corn, but every other article of our produce or manufacture, much cheaper than we can do at preſent; and the price, and demand, in foreign countries, remaining nearly the ſame, this vaſt gain would centre at home, and produce the ſame competition, the ſame encreaſe of exportation, the ſame enlargement of enterprize, as if a bounty, to its amount, were actually paid out of the coffers of the ſtate.—Indeed the benefits reſulting from the ſubſtitution of water for land carriage form infinitely the moſt eligible ſort of bounties that a nation can beſtow, to rouſe the induſtry of its ſubjects; ſince not only is a very great deal of national activity ſet on foot, during the conſtruction of canals, by which a certain degree of capital is transferred from the pockets of the rich into thoſe of the needy labourer, to the great and final advantage of the former however, as well as of every body elſe; but the owner of the goods exported receives the bounty, in the reduced price of the carriage, as effectually as if it were paid him in money.—Had the entire amount of the bounties paid for the carriage of corn to the capital, (which, from firſt to laſt, did not fall much ſhort of *two millions* ſterling,) been faithfully expended, ſince the year 1759, in making navigable communications through the country, it is impoſſible to ſay what might not have been the ſtate of the agriculture, and trade of Ireland, at this preſent moment.—A very conſiderable part of this vaſt ſum went to the maintenance of thoſe unproductive, though otherwiſe uſeful animals, draft horſes; and the whole of it is now loſt to the nation, except in as far as it has ſerved as a temporary ſpur to tillage, which has doubtleſs been benefited by it.—But that great end would have been anſwered, though not ſo ſpeedily perhaps, yet ſtill it would have been anſwered, and vaſtly more effectually too, by the great extenſion of inland navigation, which ſo large a ſum was capable of creating, the benefits of which would have deſcended to all future ages.—As this country has been ſo long accuſtomed to thoſe bounties for the carriage of corn, it may be ſaid to have acquired a kind of habitual right to their being revived in ſome ſhape or other; and in no other manner could their former yearly amount, nay even a much larger ſum, be more uſefully employed, than in completing a judicious, and ſyſtematic ſcheme of inland navigation.

IV. A great many acceſſory advantages, and conveniencies would reſult from a complete plan of this kind, which do not immediately fall under any of the foregoing diviſions; of which the following are a few:

1. The number of boats that muſt be employed on canals, the number of ſailors neceſſary to navigate theſe boats, which muſt, the one and the other, be ſupplied by this country, would give encouragement to ſhipwrights, and artiſans of that deſcription, and accuſtom a much greater number of our common people to the operations of handling a rope, or ſteering a veſſel, ſo as to give them ſomewhat of a taſte for a ſea-faring life, and render them a little nurſery for the navy.—In poſſeſſion thus of ſailors, and ſhip-carpenters, it would be a ſtrange thing, if the encreaſed number of trading veſſels, belonging to this kingdom, did not keep pace with the extenſion of our canals, and that we ſhould not, at laſt, learn to export our own productions, entirely

in our own veſſels, and bring back what we want, from other countries, in the ſame bottoms.—That we ſhould long enjoy the benefits of an extenſive interior water-carriage, and convey our products, inland, from one end of the iſland to the other, without at laſt acquiring the means of tranſporting them ourſelves to foreign nations, does not accord with that concatenation of cauſe and effect, according to which the affairs of mankind uſually proceed.

2. The regularity, facility, and cheapneſs of travelling by means of canal-boats, that depart and arrive at ſtated hours, would tend exceedingly to create a briſk intercourſe between the moſt diſtant parts of the country, would multiply information, and promote induſtry and trade of every kind.—It is not the cheapneſs of water-carriage alone that recommends it above every other, but the *regularity* and *certainty* of the conveyance. Water-carriage exiſts between Dublin, and Limerick, or Sligo, for inſtance; but thoſe voyages are difficult, of uncertain duration, frequently dangerous, and the returns exceedingly longer, upon an average, than they would be on a canal, at the rate of 2½ Iriſh miles an hour, a pace which need never vary.—Wherever canals are univerſal, the diſtances of places, as in Holland, need not be expreſſed in *miles*, but in *time;* Dublin may be ſaid to be ſo many *hours* diſtant from Waterford, Galway, Belfaſt, Londonderry, and all our other ſea-ports; by which means the tediouſneſs, and expence of a long

ſea-voyage are entirely avoided.—The certainty that the *largeſt*, as well as the ſmalleſt parcel of goods, ſhall arrive at the place of its deſtination, however diſtant, with even more regularity than a poſt-office letter does now, muſt contribute more to excite and maintain a ſpirit of intercourſe, ſpeculation, and active enterprize, than one can well conceive, who has never examined the effects of it in the ſeven United Provinces, during the period of their late proſperity.

3. Beſides the quick and regular conveyance of merchants goods on thoſe canals, the tranſport of troops, artillery, magazines, and ſtores of all ſorts, would, by means of them, be facilitated in an extraordinary degree, and the expence exceedingly reduced.—At the rate of 2½ miles an hour, an army may move on a canal 60 miles within the 24 hours, attended with every thing neceſſary for immediate action; which is at leaſt *four* times faſter than they can do by land, and at only a *ſixth* part of the expence. Canals too form, of themſelves, ſtrong lines of defence to a country, and ſupply the means, on any great emergency, of aſſembling an army ſuddenly in the moſt remote parts of it.—The gain to this nation on the tranſport of military ſtores, could they all be conveyed by water, may be found, by deducting five-ſixths from the amount of that article, in the books of the Commiſſariat Department!

4. In proportion as water carriage is reſorted to, for the tranſport of goods or the movements of armies, in the ſame proportion will our public roads

be leſs frequented, particularly by thoſe narrow-wheel'd cars, which ſpoil and cut them to pieces. This diminution of expence in making and repairing our high-ways, ariſing from the univerſality of water-carriage, would amount to a very great ſum. If the article of turnpike and preſentment roads coſts the nation 300,000l. a year, which is perhaps a low eſtimate of their expence; and if the wear and tear of roads is reduced only *one ſixth*, by means of canal and river-navigations, 50,000l. per annum would thus be ſaved to the public, which, at 20 years purchaſe, amounts to a *million* of money.—In any ſcheme, therefore, for promoting extenſive inland navigation, credit may be taken for this million, as part of the funds forthcoming for carrying it into effect.

V. The particular advantages that would reſult to thoſe diſtricts of country through which the canals immediately run, deſerve likewiſe to be mentioned. In the very act of digging them, it is poſſible that mines may be diſcovered, or other ſubſtances of value, as marble, ſlate, pipe-clay, fullers-earth, &c. but which might never otherwiſe be brought to light, through our want of ſkill, capital, and enterpriſe ſufficient to conduct ſuch reſearches.—The lands on each ſide of a canal or river navigation, will riſe in value in proportion as their produce is brought nearer to market, as they are more eaſily and cheaply manured, and as the induſtry, trade, and population of the contiguous towns and villages encreaſe, and that new towns are built.—Were 600 miles of canal, lake, and river navigation opened to the ſea in Ireland; and if, on an average, 5 miles only of country on each ſide be ſuppoſed to be encreaſed thereby in value 5 ſhillings and 2½d. per acre, then the number of ſquare miles improved would be 6,000.—Now if it be conſidered that not a ſingle ſpot of this land is, one part with another, farther than the diſtance of 2½ miles from a free and open navigation with all parts of the world, the above rate of improvement is a very moderate ſuppoſition; and its being aſſumed at double that amount, or at 10 ſhillings and 5d. an acre, might perhaps approach nearer to the truth.—But as 6,000 ſquare miles contain 3,840,000 acres, the rental of Ireland would be raiſed one million a year, according to the former ſuppoſition, and two millions according to the latter.—The firſt of theſe ſums, at 20 years purchaſe, is worth TWENTY MILLIONS ſterling, and the latter is worth FORTY MILLIONS. Let a perſon incline to either of theſe extremes he pleaſes, ſtill he muſt acknowledge an immenſe accumulation of national wealth!

Of the above 600 miles of inland navigation, not more than 250 miles, even including the canals already drawn, would require to be cut entirely "*de novo*" through the country; the remaining 350 miles, or thereabouts, (for one cannot pretend to exactneſs on ſuch a ſubject,) conſiſting of lake and river navigations, which ought not in general to be nearly ſo expenſive as the former. Thus the entire expence of rendering the Shannon navigable has been eſtimated by Mr. Jeſſop, at only 73,000l.—If it be conſidered that England alone, within the laſt

40 years, has probably completed *four* times the quantity of new cutting that we ſhould be obliged to do, in order to accompliſh the plan already detailed in theſe remarks, we ought not to fancy its extent at all to exceed our powers.—Were a fixed and ſteady ſcheme of operations ſcientifically formed, and unremittedly perſiſted in till it be fairly completed, it is ſcarcely to be doubted that even in half the above period, the *five grand trunks* already traced out, might be entirely opened on all ſides to the ſea; and the leſſer and intermediate canals deriving from theſe would afterwards follow, as the occaſions and circumſtances of the country might require.

As in a ſmall tract of this kind, it is impoſſible to enter more at length into the advantages that would reſult to the kingdom at large, from a ſcheme of this nature, it may not be improper to finiſh with ſome *hints* reſpecting the mode of carrying it into execution.

Independent of the ready money payments to the proprietors of the exiſting canals, in order to enable them to lower their preſent tolls, which render theſe works of comparatively little value to the public, let it be ſuppoſed that 200,000l. per annum were ſtrictly appropriated for ſuch a number of years as would be neceſſary to complete the whole, or the greateſt part of the navigations already ſpecified.—Three queſtions will then ariſe from this propoſition.—1. Where is the money to be found? 2. If found, in what manner is its expenditure to be guarded, ſo as to prevent its miſapplication? And 3. Do there exiſt ſufficient arguments of a commercial, political, and financial kind, to induce his Majeſty's Miniſters to ſanction ſuch a plan, and thereby apply ſo conſiderable a portion of the public revenue to the attainment of this particular object?

The general anſwer to the firſt queſtion is this.—A nation poſſeſſed of 2½ millions of current revenue, and in reſpect of many other countries very lightly taxed, may eaſily add one twelfth more to the amount of its public burthens, for a limited time only, in order to obtain ſo eſſential a national benefit, which could not fail to repay the expence laid out in acquiring it, in a moſt abundant and even extraordinary degree.—Though it would be wiſe, certainly, in the country to do this; yet the impoſition of new taxes for ſuch an object, would not perhaps be neceſſary.—Were but a very little more attention paid to the collection of the exiſting taxes, and particularly to thoſe ariſing from malt and home made ſpirits, ſo as to prevent groſs frauds in that eſſential branch of the revenue, theſe duties might eaſily be encreaſed 200,000l. a year, by which no perſon but the unfair trader would be a loſer, and the deſtruction or waſte of large quantities of grain would likewiſe be happily prevented.—Nay, if it were poſſible to put an entire ſtop to the practice of ſmuggling in this line, it is capable of being proved to a very high degree of probability, that the nation would thereby gain more than five times 200,000l. or upwards of a million ſterling per annum.—A country over-run with ſuch palpable abuſes as theſe, has only to reform its mode of collecting taxes, in order to make them as productive as its exigencies amount to.—But even were the money to be borrowed, and not raiſed by taxes at all, the improvements conſequent on its proper application, would ſoon repay both principal and intereſt.

Beſides, on the ſuppoſition of an Union taking place, this country muſt generally be poſſeſſed of a ſurplus of unappropriated revenue, which, by the terms of the treaty, may amount to any ſum not exceeding five millions. Part of this the United Parliament are empowered to apply to local purpoſes in Ireland. Now, as it is impoſſible to know beforehand the exact produce of any ſet of taxes, and yet, that this country is bound to contribute a certain fixed quota to the imperial expence, the burthens laid on here muſt rather be too *high* than too *low* to cover that expence, rather *above* than *below* the ſum required, ſo as generally to leave a certain ſurplus behind, after the full contribution is defrayed. If the preſent legiſlature of Ireland, therefore, reſolve to appropriate any money here, as ſuppoſe the annual ſum of 200,000l. for the purpoſes of inland navigation, the common Parliament of the empire can never want the means of carrying their reſolution into effect, as long as this country is capable of paying its contribution at all; ſince to enſure the payment of that contribution, *too much* inſtead of *too little* money muſt always neceſſarily be levied.

As to the 2d enquiry, reſpecting the mode of preventing the waſte of parliamentary grants, though it may be allowed that no nation can work ſo cheap as an individual, much leſs this country, where abuſes of every kind have taken ſuch deep root, yet if Parliament are only true to the truſt that muſt be repoſed in them by the public, on much greater occaſions than this, it is certainly poſſible to invent ſuch a ſyſtem of checks and impediments to the baneful practice of jobbing, as to baniſh it almoſt entirely from the progreſs of this undertaking.— The navigations propoſed cannot be carried on immediately by government themſelves, with any proſpect of economy or ſucceſs. The dictates of common ſenſe, and the authority of *Dr. Adam Smith* concur together on this point. Theſe navigations muſt be veſted as *property* in the hands of individuals, or aſſociated companies, to whom ſufficient, yet not more than ſufficient encouragement ſhould be held out, to induce them to undertake each particular work. Though reſtricted to certain low tolls, little more than barely adequate to defray the charge of freight, and the expence of keeping the navigations in repair; ſtill there cannot be wanting in this country undertakers of reſpectability and fortune, willing to adventure in this line of buſineſs, from the proſpect of ultimately benefiting themſelves, or their poſterity, by the future enlargement of agriculture and trade, conſequent on ſuch improvements. By having a very accurately detailed *plan* and *eſtimate* of each particular work, formed by ſkillful engineers, partly to be employed by government, and partly by the undertakers, the former will exactly know what the work is to coſt them, and the latter will be on their guard againſt embarking raſhly in the ſcheme.—This *eſtimate* ſhould be the meaſure to Government of their diſburſements for the object propoſed: Not a ſingle ſhilling more ought, on any account, to be paid to the undertakers, than what is contained in the *eſtimate*; nor ought the entire money to be advanced at once, but gradually, and in proportion as the works are completed.—Thus, ſuppoſe a particular line of canal was eſtimated at 100,000l.; inſtead of paying the money all at once to the undertakers, as was the caſe on a late occaſion, Government ought only to advance them a certain ſum, ſay 20,000l.; and when they have ſatisfactorily accounted for the expenditure of one half of this ſum before the Commiſſioners of Accounts, and when Government are ſatisfied by the reports of their Surveyors, appointed to inſpect the works, that they are well and truly executed both in quantity and quality, according to the detailed *plan* and in proportion to the ſum ſaid to be expended;—that then, and not before, a further ſum of 10,000l. be iſſued to them, and ſo on to the end of the operation.—Thus theſe undertakers could never have leſs than 10,000l. nor more than 20,000l. of the public money in their hands at any one time; and a more rigid ſpecies of watchfulneſs over the public purſe cannot well be expected in this matter, during the progreſs of a plan of operations, which requires a certain degree of truſt and confidence, and a certain amount of funds to carry it into effect.—It would be the duty of Government, too, to take care that the eſtimates be not too high, and of the Undertakers to ſee, that they do not err in the other extreme: and if the Undertakers ſhould miſmanage their funds, and expend more on any part of the works than they ought really to have coſt them, according to the eſtimate, ſtill the ſtable property they poſſeſs in theſe works might diſpoſe, and would probably induce many of them to go on nevertheleſs, by reforming their mode of proceeding, even though they receive no more than the exact amount of the eſtimate. The approving of theſe eſtimates then, and the taſk of examining whether the works advance acccording to the ſums diſburſed, are the only points left to the diſcretion of Government, ſubject, as all other public accounts are, to the thorough inveſtigation of a Houſe of Commons. Now, ſo far from having any better ſecurity than this, we cannot generally entertain ſo good a confidence, that the public money ſhall be as honeſtly and fairly expended, on any other object; for the money, originally bargained for, being advanced only in proportion as the works themſelves are completed, or nearly ſo, there ſcarcely exiſts a poſſibility of any groſs and fraudulent impoſition on the public.

Reſpecting the 3d and laſt enquiry, whether his Majeſty's Miniſters ought to patronize a ſcheme of this kind, and lay it down as a *maxim of ſtate*—that for many years to come, a conſiderable ſum, ſuppoſe 200,000l. a year, ſhould be expended in making canals in this kingdom; he muſt have read even this ſhort eſſay to very little purpoſe, who can heſitate for a moment to anſwer this queſtion in the affirmative. Should a perſon, whoſe capital is abundantly ſufficient to encloſe, drain, and manure a farm in his poſſeſſion, ſuffer it, notwithſtanding, to run to waſte, and inſtead of expending four pounds an acre upon it, in order to receive ten, ſhould be contented with the mere *gleanings* which it is capable of throwing up in a ſtate of uncultivated nature, we ſhould not heſitate to pronounce him a very ſorry farmer, and even, in ſome degree, a nuiſance to ſociety. Preciſely of the ſame nature would the conduct of Miniſters be, were they longer to neglect ſo fine an iſland as this, and not embrace whatever means were in their power to render it as productive as poſſible, both to itſelf and the empire, of which it forms a part. Nay the farmer would, to all appearance, have the moſt reaſonable objection of the two, to the idea of throwing his money away as he might poſſibly call it ; for, if his agricultural experiments did not ſucceed, his money would be all paid away to perſons, who were perhaps utter ſtrangers to him ; whereas the ſums expended by the nation, in the proſecution of great works of internal improvement, are all diſtributed among her own children, go all to feed her own labouring poor ; and in a country, ſituated as Ireland is, where a conſiderable part of its population are often idle through mere want of employment*, ſuch a regular and permament diſtribution of the circulating medium, to thoſe who are willing to earn it, and *to no others*, could not fail to be attended with the happieſt and moſt beneficial effects. Not a ſingle acre of corn would be ſown the leſs, nor a ſingle web of cloth manufactured the leſs, becauſe eight or ten thouſand labourers were conſtantly employed on canals, in different parts of the four provinces. Our population is adequate to the ſupport of a much greater amount of extra-labour than theſe would perform, without any ſenſible diminution of our manufactures, or produce of any kind. If Ireland be *proverbially* populous, her peaſantry are *proverbially* poor, which can mean nothing elſe than that they are by no means ſufficiently *employed*.

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* At the time this was written, there were ſome thouſands of unemployed peaſants living on the Wicklow mountains, without any regular mode of ſubſiſtence, and therefore ripe for every kind miſchief.

That almoſt from the beginning of our connexion with Great Britain, to the memorable year 1779, our induſtry has been cramped, or the iſland neglected, through the ignorance or commercial rivalſhip of our more potent neighbour, is an acknowledged truth, the conſequences of which have been, that we are now near a century behind the ſiſter country in national proſperity, and that, at the above æra, the Iriſh treaſury was literally ſo poor, as to be obliged to have recourſe to England for the paltry ſum of 50,000l. to prevent the entire ſtoppage of the machine of government. True it is indeed, that a more liberal ſyſtem has been adopted ſince that period, ariſing from the conviction, that to depreſs a neighbouring and friendly nation, in order to riſe upon its ruins, is the moſt *wretched policy* in the world ; nay the ſame principles of public utility even dictated a treaty of commerce with our hereditary enemy, on terms of reciprocal advantage. It imports much to Great Britain, that the ſurrounding countries with which ſhe trades, ſhould be rich rather than poor, as the demand for her commodities and manufactures is exactly in proportion to their wealth.—The moſt valuable intereſts therefore of the Britiſh monopoliſt and his poſterity, though he be frequently unable to ſee them, are unqueſtionably involved in the idea of promoting, by every means in his power, the improvement of this country; ſo much ſo, that he ought to be one of the firſt to ſubſcribe to any plan that might be offered for extending the inland navigations of Ireland.—Except the people of this country themſelves, no other individuals are more concerned in promoting our trade and induſtry, than the manufacturing and mercantile claſſes of the Britiſh nation; for were we twice as wealthy as we are, we ſhould be enabled to double our imports from them, and thus render our market twice as valuable to them as it now is; and the world is ſufficiently large to allow both countries to exert the entire powers that God and nature have given them, without any claſhing or competition of commercial intereſts whatſoever.

But it is almoſt abſurd to imagine, that *at this time of day*, the former narrow prejudices, ariſing from jealouſy of trade, ſhould at all operate to the diſcouragement of a ſcheme of this kind, to be executed with our own money, and in a manner totally unconnected with what is paſſing in the ſiſter kingdom: The very reverſe of this ought to be, and no doubt is the fact.—According to the meaſure of ſeverity and partial reſtraint with which Great Britain has treated us in times paſt, ſhould be her exertions now to repair the harm ſhe has done us to raiſe us ſomewhat to a level with herſelf, and to make us ſet its due value upon a future, and more intimate connexion with her.—But if the only boon we have to aſk, on this occaſion, be merely, that miſtaken notions of rivalſhip in trade ſhould be prevented from caſting a damp, in the general councils of the Empire, upon the adoption of whatever means are neceſſary for our regaining the advantages we have loſt, by her former impolitic and oppreſſive interference, this ſeems to be ſo moderate and reaſonable a requeſt, that it were ſtrange indeed if it could be refuſed, even for a moment.

The arguments of a *political* nature, that ſhould induce Miniſters to graſp, even with avidity, at ſuch a ſcheme as has been delineated, are ſo ſimple and obvious in themſelves, that they merely require to be mentioned, in order to their carrying conviction along with them.—The unruly character of the common Iriſh peaſantry, their proneneſs to revolt and rebellion, their innate and hereditary diſlike, and in ſome caſes even abhorrence of the Engliſh power in this country, can only be mitigated, and changed by a more gradual diffuſion of *induſtry* and its concomitant, *wealth*. You muſt *intereſt* them in the ſupport of the preſent conſtitution, before they become attached to it.—Severe laws have been tried, for upwards of half a century.—They have had no effect.—An Union is now reſorted to, for the ſame purpoſe; but if an Union be not accompanied with an utter change of ſyſtem, with regard to theſe poor ignorant people, it can produce nothing but a ſullen acquieſcence, impoſed and ſupported by the bayonet. Unleſs ſome grand and radical cure for this inveterate political diſorder be early, judiciouſly, and ſyſtematically employed, they may continue to retain for centuries their preſent hatred to the Engliſh name, into whatever ſhape or form the government of the Empire may be moulded.—Now, it cannot be denied, becauſe the matter has been already placed beyond all doubt, that a comprehenſive plan of inland navigation, if carried into effect, would form a principal, if not the very chief ingredient in this cure. The induſtry that it would excite, in the very execution of it, would ſerve to introduce habits of laborious and ſkillful exertion, which would afterwards be turned to other objects. Theſe objects would be ſupplied by the very plan itſelf, would be multiplied, and diverſified *ad infinitum* by the facility and regularity of the intercourſe which it would create between all parts of the kingdom, even the moſt remote.—Were this country divided by canals into the eleven *iſlands* already mentioned, no part of it, ſituated on their banks, would, in reſpect of the preſent rate of carriage, be farther removed from any other part than from 20 to 25 miles. For in compariſon with the preſent diſperſed, and disjointed ſtate in which the inhabitants of Ireland live, the greateſt part of them would then be able to communicate with each other, to ſend commodities to, and receive them from each other, at the ſame identical expence as they could do, were they collected, at this moment, into that ſemicircular area round Dublin, whoſe radius is from 20 to 25 miles. The ſimple reduction of the price of carriage to one ſixth of what it now coſts would evidently effect this; and as far as trade, agriculture, and manufactures are concerned, would bring almoſt every part of the kingdom ſix times nearer to every other part of it, than they at preſent are. The reader may be left to figure to himſelf the advantages that muſt inevitably ariſe from thus converting the entire iſland of Ireland into *one great city*, without any of the diſadvantages that attend the reſidence of mankind, in great numbers together, on the ſame ſpot.—Were he duly to conſider the conſequences of ſuch a radical change, he could not heſitate to pronounce, that it would of itſelf tend to advance this country a century in agriculture, trade, and opulence, ſooner than ſimilar advances could be made in the ordinary manner, and by the ſlow progreſs of ſociety.—Along with that of moſt parts of Europe, the improvement of Ireland is, no doubt, progreſſive, and has been ſo, during this entire century; but the progreſs is ſo very tedious, that another century at leaſt muſt paſs away, before we acquire a degree of internal trade ſufficient to induce individuals, as in Great Britain, to undertake the cutting of canals in every direction, as an advantageous private ſpeculation. Being utterly unable then to copy that illuſtrious example, at the preſent moment, and there being no likelihood of our becoming ſo, within any reaſonable period of time, if Miniſters really want to *civilize* this country, as they phraſe it, if they wiſh to introduce among our idle, wretched, and turbulent peaſantry the ſpirit of induſtry and uſeful labour, and that attachment and ſubmiſſion to the laws, which never fail to accompany that ſpirit,—if they wiſh, in ſhort, to effect theſe noble purpoſes at leaſt half a century ſooner than they could be obtained in any other manner,—they will come forward boldly, manfully, and at once, and laying aſide on this occaſion, the example of England as not at all applicable to the circumſtances of this poor and deſtitute country, they will adopt, as their model, the practice of all other ſtates, in which works of ſuch general utility have been uniformly conſtructed at the public expence.—Even with regard to England, it may be affirmed without any danger of contradiction, that had ſhe begun to conſtruct canals a century ſooner than ſhe did, her progreſs in opulence would have been accelerated, and her proſperity would have riſen, if not in a ſimilar proportion, at leaſt to a very conſiderable and even ſurpriſing heighth above her preſent attainments.

With regard to *financial* conſiderations, it is not perhaps neceſſary to enlarge much on arguments of this kind, becauſe they are, as it were, evident *corollaries* ariſing from the whole of what has been attempted to be proved.—To accelerate by half a century, ſuppoſe, or any other conſiderable period of time, our ability to pay taxes, ſuch as England does, muſt be an unſpeakable relief to us, under the evils of the funding ſyſtem, which has drawn ſo largely on poſterity in both countries, and which is likely to involve this in as great load of debt, compared with her means of redeeming it, as that which is now felt by Great Britain herſelf.—In reſpect of taxation too, the more this country is improved, preciſely in the ſame proportion would be the advantage to Great Britain; as it would furniſh her with ſo much the ſurer pledge of our ability to pay the imperial contribution propoſed, or to encreaſe our quota in future. Now if 200,000l. a year wiſely and conſcientiouſly expended, in conſequence of a preconcerted plan, formed with the utmoſt caution, diligence, and ſkill, and with the ſole view of facilitating trade and induſtry in the moſt effectual manner, would be ſufficient, in leſs than 20 years, to open the greateſt part of the navigations already ſpecified; of which there can be but very little doubt; it is almoſt a ſelf-evident propoſition, that, at no very diſtant period thereafter, the money would be refunded ten-fold to the exchequer, by the encreaſed ability of the country to pay taxes of every deſcription, an ability which would be as permanent and as durable as that very public proſperity, from whence it takes its riſe.

It is not, however, meant to be inſinuated that the Miniſters of the preſent day are likely to continue long enough in office to witneſs the full effects ariſing from the ſucceſs of ſuch a plan.—But as they ſeem to look forward to poſterity, in ſome of their moſt favourite meaſures, and to reckon on the ſuffrages of millions yet unborn, as the moſt ample rewards for their extraordinary exertions; perhaps they will be willing to ſubmit to the unbiaſſed judgment of other Miniſters, and of other times, the merits of this plan too, for the improvement of a great Member of his Majeſty's dominions, and that along with the Income Tax, the ſcheme of the Sinking Fund, and of the Union with Ireland, they will tranſmit a *regular and ſettled ſyſtem* for conferring on this country the benefits of water-carriage, as a *ſolemn legacy to poſterity.*—Of theſe four great meaſures it may be truly ſaid, that the laſt, if carried into effect, is likely to be accompanied with the greateſt portion of unequivocal good, mixed with the leaſt alloy of evil.

One conſideration ought, however, in concluſion to be ſtrongly impreſſed on the minds of thoſe who may be willing to profit by theſe *hints.*—No enterprize of this kind will ever be crowned with ſucceſs, unleſs the entire plan of it be previouſly formed, with all its relations and bearings, unleſs the facts upon which that plan depends be narrowly examined and poſitively aſcertained, unleſs, in ſhort, a great deal of trouble and expence be incurred in forming it, and the enquiry for this purpoſe, conducted by all the lights that the ſcience, and all the penetration that the exerciſed underſtandings of the firſt men in the Empire can poſſibly contribute.—It is from the want of minute and ſyſtematic knowledge of this kind, it is from the omiſſion of labouring for years to form an exact acquaintance with the levels of the country, the altitude and direction of its mountains, the courſe and depth of its rivers, the obſtacles to be overcome, and the means by which they are to be got over, that many projects in themſelves perfectly practicable, are looked upon as chimerical*, that many more have been attempted, which were either in themſelves of little uſe, or were ſoon relinquiſhed through unforeſeen difficulties, and that the buſineſs of inland navigation in Ireland, till the preſent Grand Canal Company took it up, has conſiſted of a ſeries of lame and abortive attempts, which were it not for the late ſucceſsful exertions of that uſeful body of men, and of one or two Companies more, might have left an impreſſion very unfavourable to the expediency of encouraging ſuch purſuits in this country.—Every thing in a matter of ſuch conſequence ought to proceed by ſyſtem, and not be left to the caprice of ignorant and intereſted individuals; and when once a ſcientific ſcheme of operations is maturely framed, the poſſibility of deviating from it ought to be prevented, by its receiving the ſanction of legiſlative authority.

The writer of theſe remarks having no other object in view than the ſucceſs of an undertaking, which promiſes ſuch great and laſting national advantages, has therefore expreſſed himſelf with all that ſincerity and freedom which the occaſion demanded.—As he does not write for the multitude, or with a view to public applauſe, he has thought

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* See an example of this in the Appendix.

proper to ſacrifice *ſtyle* to *matter*, and has collected together as much argument as he could poſſibly crowd into ſo ſmall a ſpace; for propoſitions, tho' ſeverally true, may ſometimes throw much light on each other ſimply by their juxta-poſition, and by their being combined into one whole, ſtript of all tireſome and ſuperfluous ornament.

APPENDIX.

APPENDIX.

The following authentic copy of Mr. Jeſſop's Report, reſpecting the practicability and expence of making a harbour for large veſſels at Dunleary, to communicate with the new Docks by means of a Canal, will gratify the public curioſity on this important ſubject, and it is to be hoped, induce the commercial intereſts of this City to pay every attention to an improvement, which to them would be ſo invaluable a bleſſing.—When it is conſidered that the City of Glouceſter alone is now engaged in drawing a Canal, ſeventeen miles long and eighteen feet deep, in order to poſſeſs the benefit of a ſafe and capacious harbour; the citizens of Dublin, aſſiſted by the government of the country, ſhould not deſpair of one day obtaining a ſimilar advantage.

TO THE COURT OF DIRECTORS OF THE GRAND CANAL.

GENTLEMEN,

ON attentively conſidering the plan propoſed for making an effective and permanent communication between the port of Dublin, and the deep water at the point of Dunleary, I find the moſt practicable mode will be, to cut a Canal through the encloſed lands, from the ſouth end of the Docks to meet the ſtrand at Old Merrion; and from thence to extend it along the ſtrand to Dunleary.—The firſt mentioned part may be done with great facility; the latter part will have conſiderable difficulties to contend with, which can only be ſurmounted by conſiderable expence.

After extending the preſent docks about 320 yards in length, and raiſing the walls and gates ſo as to contain 20 feet in depth of water, I would propoſe that the Canal, with the ſame depth of water, ſhould be made 80 feet wide at its bottom, and 160 feet wide at the water's ſurface.

Along the ſtrand, the Canal which will be cut to the depth of the low water at ſea, muſt be defended by an embankment, which I propoſe to be 20 feet wide at the top and 120 feet at its baſe; the external part having an eaſy ſlope, muſt be defended by rubble ſtone as part of the embankment, which from 20 feet of baſe may diminiſh to a yard in thickneſs at the top.

At its termination at Dunleary, I would propoſe that by means of two locks, the one for large, the other for leſſer ſhips, it ſhould communicate with a baſon of about 150 yards in length and 50 yards in width, ſunk to the depth of 12 feet under low water of the ſea; this baſon to be cloſed by a pair of ſea-gates through which veſſels of leſs draft than 12 feet may enter at low water; at high water veſſels drawing from 20 to 24 feet might enter, and the gates being ſhut, ſuch as can navigate on the Canal may enter it at leiſure by the locks.

This baſon will admit at one time 15 ſail, and more in ſucceſſion; when thoſe firſt entering may paſs into the Canal.

To defend the gates of the baſon from agitation by the ſea, and to give ſhelter to ſhips waiting for entrance, or reſorting to it for ſecurity, I would propoſe that there ſhould be an external harbour defended by two piers; the one which I have deſigned and included in the eſtimate would contain 100 ſhips; the bottom of this harbour muſt of courſe be ſunk to the depth of 12 feet *at leaſt* under low water; the preſent depth where the piers are propoſed to extend to, is about 3 fathoms at low water. The River Dodder may be received into the Canal, and while the preſent bed of it, between the line of the Canal and Ball's Bridge, will be a receptacle for the gravel which it brings down in floods, its water may be diſcharged from the Canal by an overfall into its own channel.

It will appear by an eſtimate annexed, in which ample allowances are made for the difficulties to be encountered, that the coſt of this important work may be 405,439l. Great as this expence may be conſidered, I truſt when its object is duly appreciated, it will vaniſh in the compariſon. Without ſuch an improvement of the port, the City of Dublin never can participate of the commercial benefits which are now enjoyed by the commercial towns of England. *It is not within the power of art to obtain it by an improvement of the preſent channel, if ten times the ſum were to be allotted for it.*

It is not Dublin alone that is intereſted in this improvement; its effects will be felt to a great extent in the interior parts of Ireland.—Wherever there is now, or may hereafter, be a communication by inland navigation, the commerce and agriculture of the country will be improved by it, and England muſt conſequently derive benefits from it. It is remarkable and notorious that in thoſe parts of England where no harbours can be made, or where they have been, and are now neglected or loſt, the country is thinly peopled; and on the contrary the country is every where alive, where there is acceſs to the ſea, and that in proportion to the goodneſs or imperfection of the ſeaports combined with the reſpective internal connections which have been made by the means of inland navigation.

To a country the political exiſtence of which depends on its commerce, and where commerce could not exiſt without the means which give facility to navigation, it might certainly be a rational enquiry whether it now is in poſſeſſion of all the means which are neceſſary, or whether an extenſion of the means may not continue to produce an encreaſe of the benefits which experience has proved to have been derived from thoſe already in its poſſeſſion; but this enquiry is every where anticipated by ſpontaneous exertions towards improvement. In London upwards of two millions are eagerly ſubſcribed for the enlargement of its port; at Liverpool an extenſion of their docks is found neceſſary and is reſolved on; at Hull an extenſion is loudly called for, but it is checked by a monopoly; at Briſtol an extenſive plan of improvement has been deſigned and approved, but there the deſign at preſent lies dormant, probably from the want of a better inland communication, which they have in proſpect and hope to obtain.

At Dublin, in addition to extenſive demand within itſelf, proviſion is already made for a wide expanſion of trade; it has docks and canals, with a proſpect of extenſive ramifications from them; but the door to them is ſhut; commerce creeps through a wicket; there wants depth of water for ſuch ſhips as are employed in the Weſt-India trade, and copper-bottomed ſhips very unwillingly uſe a port where they muſt take the ground, even when they have ſoft mud to reſt on, which is not the caſe at Dublin.

By the plan propoſed, Weſt-India ſhips might be received into much better floating docks than are now in England. Ships from the Baltic would reſort to them, and every ſpecies of foreign productions would find its way into the heart of Ireland, while the products of Ireland would go out in return for them.—The intercourſe with England would be greatly facilitated, as no other port would be ſo convenient for victualling the Liverpool ſhips as Dublin. The packets, inſtead of waiting for the tide to paſs the bar, might come in or go out at any hour whatever—the buſineſs of the poſt-office inſtead of fluctuating with the tides, might be as regular as in London. In ſhort, agriculture, trade, manufactures and civilization, would ſo ſenſibly feel the effect of this meaſure, that if, as I believe, I have not uſed exaggeration, I may ſurely venture to repeat that the ſum neceſſary to its execution, ſhould in regard to its magnitude vaniſh in the compariſon, eſpecially when it is conſidered that nearly the whole of it would, through the channel of induſtry, return into the country, leaving behind it a permanent monument of wiſe and patriotic exertion.

I humbly hope and truſt that the government of the country may ſee and feel it as I do.

In addition to what has been ſaid, I cannot help ſubmitting my opinion that the idea which has been ſuggeſted of making Dalkey Sound a ſafe retreat for ſhipping in ſtormy weather, highly deſerves attention.

I have reaſon to believe that leſs than 50,000l. would compleatly effect it, and after the numerous inſtances of ſhipwreck which have recently happened, ſo ſtrongly tending to check the trade of the port, humanity and good policy call for this meaſure of ſecurity for life and property, as it ſeems well underſtood that no other place of ſafety, equally good, is ſo eaſily attainable.

While the conſideration of the benefits likely to reſult from the foregoing objects occupy the mind, it is impoſſible to detach from it the hope that the ſame motives will operate in promoting the extenſion of the canals, without which thoſe benefits, though great, would be limited ; and nothing can be more obvious, nor in fact more ſatisfactory, than that one improvement generally makes another neceſſary—as from the trunk of a thriving tree the branches grow with its growth, and its fruit amply pays for its cultivation : Yet the cultivation ſhould be left to thoſe whoſe circumſtances may enable them to wait for the fruit until time may bring it into bearing.

W. JESSOP.

Dublin, April 29, 1800.

Eſtimate of the expence of making a Canal *from the Docks to Dunleary, of* 80 *feet in width at the bottom,* 160 *feet at the water's ſurface, and* 20 *feet depth of water, with a* Baſon, *and* Harbour *at its termination :*

	£.
Raiſing the walls and gates of the preſent docks ſo as to contain 20 feet of water,	6,000
Extenſion of the baſon from the ſouth end of the dock,	10,800
Excavation of the canal from the docks to the ſtrand,	24,900
Excavation of the canal on the ſtrand,	41,960
Earth and clay in the embankment on the ſtrand, extra to the excavation,	28,800
Rubble ſtone, to defend the earth-work from the ſea,	32,400
Grooved piling, under the embankment, to exclude or retain water, which might ooze through the ſands underneath it,	5,200
Excavation of the baſon and harbour, to the depth of 12 feet under low-water of the ſea, ſo as to give from 21 to 24 feet at high-water,	18,375
Coffre-dams, to exclude the ſea during the excavation and the building of the baſon and locks,	30,000
Building of two piers to include a harbour that will contain 100 ſhips,	61,120
Baſon, with ſea-gates, and two locks,	32,000
Three draw-bridges, with gates at the docks,	5,500
Taking in the river Dodder, with over-fall to diſcharge it,	2,500
Culverts under the canal, and back drains for the paſſage of water from low grounds,	3,000
Steam-engines, temporary dams, and pumping of water during the execution of the works,	30,000
Purchaſe of lands and building, and for temporary damages,	20,000
	352,555
Contingencies, or allowance for accidents and unforeſeen expences, &c. at 15 per cent. on the eſtimate,	52,883
	405·438

Eſtimate of the expence of compleating a ſafe Harbour at Dalkey-Sound.

	£.
Rubble-ſtone pier to the height of low-water, -	17,360
Pier on top of do. from above low-water, to 4 or 5 feet above high-water, - - -	3,871
Parapet wall over the entire, - - -	1,350
Pier on the rocks, from Dalkey iſland to Maiden Rock, - - - - -	12,904
Parapet wall, - - - - -	4,500
Light-Houſes, &c. - - - -	3,000
	42,985
Contingencies at 15 per cent. - -	6,450
	49,435

From theſe two accurate eſtimates, then, of Mr. Jeſſop, making together 454,873l. (not more than the fifth part of what the city of London means to expend on docks alone,) it would appear, that Dublin could, for that ſum, be put in poſſeſſion of an excellent harbour 20 feet deep every where, and therefore capable of admitting loaded veſſels of from 5 to 600 tons burthen, which are almoſt the largeſt uſed even in the Jamaica trade. This harbour would terminate in the preſent docks, and transfer into them a conſiderable part of the buſineſs now carried on in the river.—The ſuperior conveniences that the docks would afford for loading and unloading goods with eaſe and diſpatch, for the ſafety of the cargoes and the ſecurity of the revenue, compared to thoſe that can be found in an open river, are too obvious to require to be enlarged on.—Thus, the amount of the ſmuggling and plunderage alone, in an open river, muſt every where be very great; and in the river Thames, in reſpect of Weſt-India produce only, has been calculated at between 2 and 300,000 pounds annually.

But there is one reaſon why the acquiſition of a new harbour here, ſeems to be an indiſpenſible object, if it be really in contemplation to impart to this city the benefits of the *warehouſing ſyſtem*, which have already been propoſed in the Britiſh parliament, to be extended in Great Britain to the article of ſugars, and may probably become univerſal with regard to all foreign produce.—In the preſent docks, excellent accommodation might indeed be found for warehouſing foreign goods intended to be reſhipped; where being kept in ſecurity, and the duties bonded, the benefits of the re-export trade might in ſome meaſure be communicated to this port.—But alas! without a better harbour than the preſent, what foreign trade can Dublin ever expect to poſſeſs! —Even at the heighth of the tide, the Liffey has only 13 feet water in many places, which yet muſt be paſſed over before our merchantmen can enter.—The idea then of introducing the ſyſtem of ſtoring goods for re-exportation, or what, in a qualified ſenſe, may be called a *free port*, is totally impracticable and inadmiſſible, without the formation of a better harbour.

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